

15. NOTES ON A COLLECTION OF BARNACLES FROM
THE EAST COAST OF INDIA

(With five text-figures)

INTRODUCTION

This paper lists 30 species of Cirripedes from the inshore areas of Porto Novo, and Mandapam-Krusadi island region collected during the course of faunistic surveys in May and September-October 1960 by the authors for the Zoological Survey of India. All the thirty species are new records for the localities as indicated in the Table. In addition, *Balanus hoekianus* Pilsbry, 1916, is redescribed briefly since the previous description of this species from a single lot is inadequate. Notes on *Chthamalus malayensis* Pilsbry, 1916, and *C. challengerii* Hoek, 1883, recorded for the first time from the Bay of Bengal, are also given to facilitate easy identification.

TABLE
LIST OF SPECIES

Name of species	No. of specimens	Localities	Z.S.I. Reg. No.
Family Lepadidae			
1. <i>Lepas anatifera indica</i> Annandale	8+4	Porto Novo & Pamban bridge	C 4495/1
2. <i>Lepas anserifera</i> Linne	6+6	-do-	C 4496/1
3. <i>Lepas pectinata</i> Spengler	7	Gulf of Mannar	C 4512/1 & C 4514/1
4. <i>Conchoderma virgatum</i> (Spengler)	1	Krusadi island	C 4499/1
Family Trilasmidae			
5. <i>Trilasmis minuta</i> (Gravel)	8+2	Porto Novo & Palk Bay	C 4505/1
6. <i>Trilasmis kaempferi</i> (Darwin)	4	Krusadi island	C 4506/1
7. <i>Trilasmis amygdalum</i> (Aurivillius)	4	Porto Novo	C 4506a/1
8. <i>Octolasmis tridens</i> (Aurivillius)	22+12	Porto Novo & Palk Bay	C 4507/1
9. <i>Octolasmis warwickii</i> Gray	36+4	Porto Novo, Pamban Bridge & Palk Bay	C 4511/1 & C 4513/1
10. <i>Octolasmis grayii</i> (Darwin)	34+1	Porto Novo & Krusadi	C 4502/1
11. <i>Octolasmis lowei</i> (Darwin)	20	Porto Novo	
12. <i>Octolasmis cor</i> (Aurivillius)	52+64	Porto Novo & Gulf of Mannar	C 4515/1
13. <i>Octolasmis nierstraszi</i> Hoek	1	Krusadi island	C 4503/1
14. <i>Octolasmis angulata</i> (Aurivillius)	48	Porto Novo	C 4503a/1

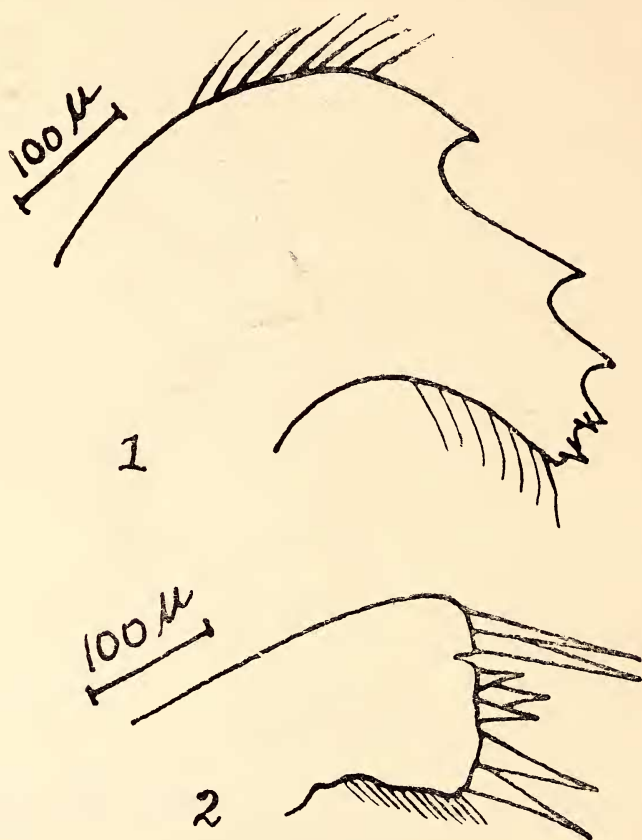
Name of species	No. of Specimens	Localities	Z.S.I. Reg. No.
Family Balanidae			
15. <i>Balanus tintinnabulum tintinnabulum</i> (Linne)	3+3	Porto Novo & Mandapam	C 4491/1
16a. <i>Balanus amphitrite communis</i> Darwin	64+30	Porto Novo & Gulf of Mannar	C 4486/1
b. <i>Balanus amphitrite variegatus</i> Darwin	62	Mandapam, Gulf of Mannar & Pamban Bridge	C 4484/1 C 4481/1 C 4492/1
c. <i>Balanus amphitrite venustus</i> Darwin	3	Pamban Bridge	C 4488/1
d. <i>Balanus amphitrite cirratus</i> Darwin	11	Gulf of Mannar	C 4482/1
17. <i>Balanus sinnurensis</i> Daniel	11	Porto Novo	C 4170/1
18. <i>Balanus calceolus</i> Darwin	2	Krusadi	C 4493/1
19. <i>Balanus tenuis</i> Hoek	3	Pamban Bridge	C 4483/1
20. <i>Balanus amaryllis</i> Darwin	2	Gulf of Mannar	C 4485/1
21. <i>Balanus ciliatus</i> Hoek	1	-do-	C 4487/1
22. <i>Balanus hoekianus</i> Pilsbry	2	Porto Novo	C 4487a/1
23. <i>Balanus longirostrum krusadiensis</i> Daniel	6+6	Porto Novo & Palk Bay	C 4481/1
24. <i>Acasta sulcata spinosa</i> Daniel	2+2	-do-	C 4510/1
25. <i>Chelonibia testudinaria</i> Linne	1	Gulf of Mannar	C 4494/1
26. <i>Chelonibia patula</i> Ranzeni	6	Gulf of Mannar	C 4490/1
27. <i>Chelonibia caretta</i> (Spengler)	2	-do-	C 4498/1
Family Chthamalidae			
28. <i>Chthamalus stellatus</i> (Poli)	48	Gulf of Mannar, Mandapam & Pamban Bridge	C 4500/1 C 4501/1 C 4504/1 C 4508/1
29. <i>Chthamalus challengerii</i> Hoek	5	Pamban Bridge	C 4497/1
30. <i>Chthamalus malayensis</i> Pilsbry	4	-do-	C 4509/1

Balanus hoekianus Pilsbry, 1911

Shell and opercular plates white, subcylindrical with triangularly ovate orifice. Compartments solid, without pores and without radii. Parietes solid, not distinctly ribbed, with no chitinous cuticle and no hairs. Alae smooth with oblique upper margins and peritreme deeply serrate. Rostrum largest compartment, externally indistinctly rugose longitudinally, internally with tripartite sheath. Carina strongly concave; lateral compartment triangular with well-developed ala. Carino-lateral plate narrow, recurved and with bipartite sheath. Basis thin, transparent, calcareous at the edges only. Scutum thick, twisted at the apex, marked with fine growth-striae externally; with short and well-developed articular ridge. Articular furrow narrow, shallow but distinct. Adductor ridge discernible only faintly. Tergum small and thick; scutal margin concave, carinal margin short, strongly convex; spur long and narrow, separated from scutal margin by nearly its

own width; articular ridge high and massive, articular furrow wide but not deep; depressor crests short but sharp.

Mandible (Fig. 1) with four teeth. Maxilla I (Fig. 2) with a notch below the upper two large spines.



Figs. 1 & 2. *Balanus hoekianus* Pilsbry, 1911
1. Mandible; 2. Maxilla I

This is the first record of this species from the Indian Ocean.

***Chthamalus challenger* Hoek, 1883**

This species has been previously recorded from the west coast of India (Bombay) by Bhatt & Bal (1960). Other records are from Red Sea, Colombo, Malay Archipelago, and Japan.

The largest specimen in the collection has a carino-rostral diameter of 5.5 mm. and a lateral diameter of 3 mm. Shell conical, almost rounded with large orifice. Colour bluish gray. Compartments

smooth, delicate, easily separable from one another and from surface of attachment. Radii narrow, but well developed. Scutum with prominent articular ridge and a narrow adductor. Lateral depressor muscle pit indistinct. Tergum wide above, narrow below; upper free portion prominently laminate. Articular ridge strong with wide furrow. This species is easily distinguishable from *stellatus* by the well-developed adductor ridge of the scutum, the short articular ridge with the characteristic tapering lower end. Mandible (Fig. 3) with lower extremity bearing three conspicuous points. The mandible of *stellatus* is also figured (Fig. 4) for comparison.

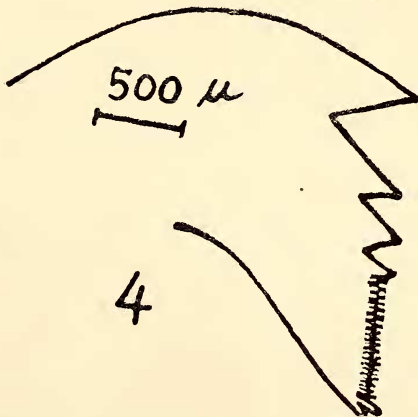
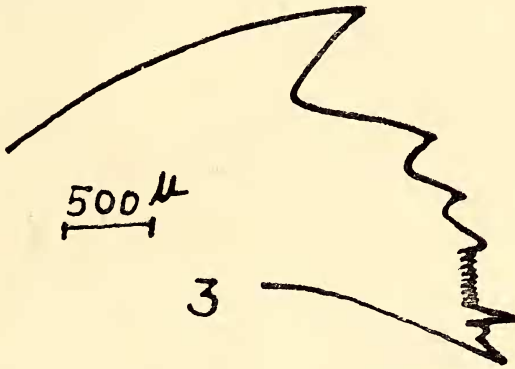


Fig. 3. Mandible of *Chthamalus challengeri* Hock 1883

Fig. 4. Mandible of *C. stellatus* (Poli) 1791

***Chthamalus malayensis* Pilsbry, 1916**

1916. *Chthamalus malayensis* Pilsbry, p. 310
 1931. *Chthamalus malayensis* Broch, p. 55
 1938. *Chthamalus malayensis* Nilsson-Cantell, p. 31.

This species has been previously recorded from Akyab, Arakan coast, Burma, Indian Ocean, and Malay Archipelago. This is the first record from the Bay of Bengal.

The specimens in the present collection agree well with the descriptions of *C. malayensis* given by Pilsbry (1916) and Nilsson-Cantell (1938). Opercular valve corroded externally. Scutum with articular ridge very prominent in the middle; adductor ridge short. Tergum triangular, narrow at the lower end and broad above. Mandible (Fig. 5) bears four teeth, with the third and fourth bifid. Six small teeth occur between the fourth tooth and the lower spines. Front margin of Maxilla I is irregular. Terminal segments of cirrus II without large-toothed spines. Cirrus IV bears four pairs of spines on the front margin of the segments.

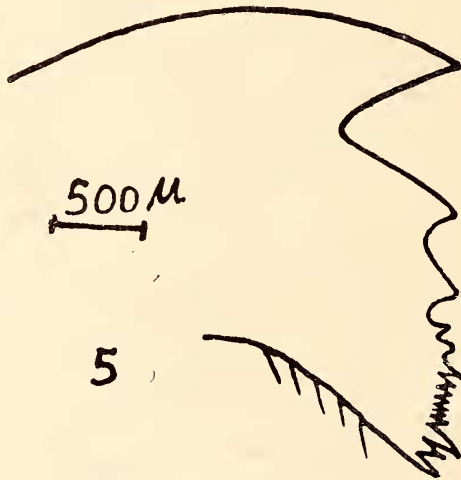


Fig. 5. Mandible of *C. malayensis* Pilsbry 1916.

This species can be distinguished from *C. challengerii* and *C. stellatus* by the presence of coarse teeth below the fourth tooth of the mandible.

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16. A NOTE ON *GNAPHALIUM PEREGRINUM* IN NORTH AND NORTH-WESTERN INDIA

Gnaphalium peregrinum Fernald in *Rhodora* 45: 479, 1943; Munz. & Keck, *Cal. Fl.* 1259, 1959; *G. purpureum* auct. pl. non Linn.

Materials kept under the name of *Gnaphalium purpureum* in the Herbarium of Forest Research Institute, Dehra Dun (DD), and Herbarium of Northern Circle of Botanical Survey of India, Dehra Dun (BSD) did not match with sheets of *Gnaphalium purpureum* Linn. from countries other than India housed in DD. On closer scrutiny all the Indian specimens of BSD & DD turned out to be *G. peregrinum* Fernald, which is similar to *G. purpureum* Linn. in many respects. The two taxa can be distinguished as follows:

Lower leaf surface closely white-pannose, the subappressed hairs tightly enmeshed; involucre densely woolly at base only; head 4-6 mm. long

G. purpureum

Lower leaf surface loosely villose-lanate; involucre almost completely covered in wool except the tip; head 3-4 mm. long

... *G. peregrinum*

Specimens examined: UTTAR PRADESH. Agra, Jameson s.n. (DD): C. L. Malhotra 13577 (BSD). Ambara (Kheri Dist.) Inayat 22259 a-c (DD). Aurangabad (Bulandshahr), N. P. Singh 19458 (BSD). Balawali, Sarin 5036 (BSD). Chandpur, C. L. Malhotra 20241 (BSD). Dehra Dun, Duthie 1782 (DD); Gamble 24031 (DD); S. K. Malhotra 18532 (BSD); N. P. Singh 31302 & 31693 (BSD). Etawah, C. L. Malhotra 13537 (BSD). Garhwal, C. L. Malhotra 2748 (BSD).